

Work Order ID 69796



Page 1

Thursday, May 19, 2011 1:02:14 PM

Item ID: D6005-128

Accept



Setup Start



Revision ID:

Item Name: Crosstube Material

Stop



Start Date: 5/19/2011 Start Qty: 40.00



Cust Item ID:

Required Date: 4/12/2012 Req'd Qty: 40.00



Customer:

Reference:

Approvals: Process Plan: C2 Date: 11/05/19 Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D6005

Rev A

100

0.00



PURCHASING

Purchasing

Memo

0.00

Purchasing

Issue P/O:

14138

- a) Order as per Dwg D6005
- b) Material: 2.750 x 0.375 wall 7075-T6/T6511 (WW-T-700/7 or □QQ-A-225/9 or QQ-A-200/11) seamless aluminum tube
- c) Minimum ultimate tensile strength = 77 ksi
- d) Minimum tensile yield strength = 66 ksi
- e) Tolerance are per ASTM B210 (see details on Dwg D6005)
- f) Material certification required

C2 11/05/19 40

110

Receive & Inspect for Damage & Mat'l Certs

0.00



Packaging

Memo

0.00

Packaging

Ensure material certification is attached

11/24/19 41

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

[illegible]

Thursday, May 19, 2011 1:02:14 PM

[illegible][illegible]

[illegible]

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1. The first step in the process is to identify the problem. This involves gathering information about the situation and understanding the needs of the stakeholders involved.

Abstract

Insp. Stamp

THE UNIVERSITY OF CHICAGO

Quality Control

Ensure Material certification comply to Dwg D6005

Identify as per dwg & Stock Location: 46 0.00

[illegible]

Packaging

Memo

0.00

Packaging

QC21- Final Inspection - Work Order Release	0.00
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[illegible]

Memo

0.00

Quality Control

MCS 12/02/14 (41)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 1

Work Order ID: 69796



Parent Item: D6005-128



Parent Item Name: Crosstube Material


Start Date: 5/19/2011

Required Date: 4/12/2012

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP Rev:C 04.06.15 Added tolerance to Step 2 KJ/JLM
IPP Rev:D 08-09-23 fixe typo in dwg name DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6005-128P  Crosstube material		Purchased	No			110	Each	0.0000	1	40			



Handwritten signature and date 6/12/11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

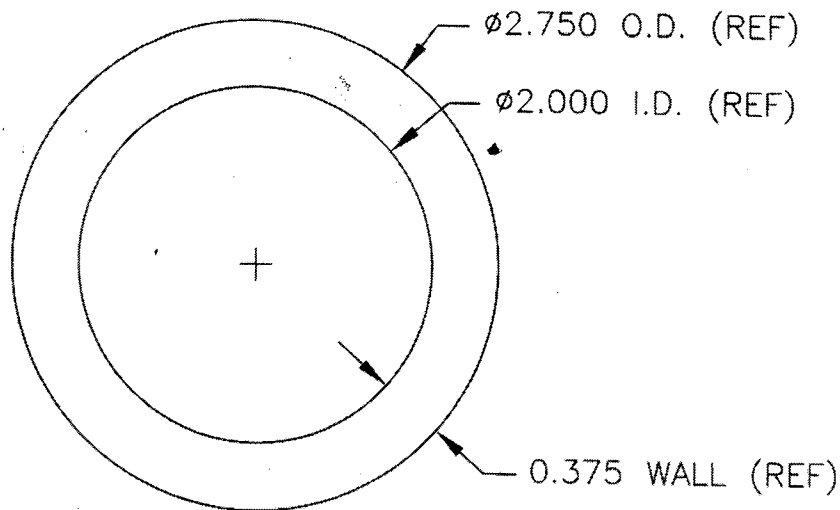
NOTE: Date & initial all entries



DESIGN <i>CP</i>	DRAWN BY <i>CP</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>A</i>	APPROVED <i>A</i>	DRAWING NO. D6005	REV. A SHEET 1 OF 1
DATE 00.11.17		TITLE CROSSTUBE MATERIAL	SCALE 1:1
A	00.11.17	NEW ISSUE	

SPECIFICATION CONTROL DRAWING

RELEASED
00.11.24 *A*



NOTES

- 1) D6005-XXX CROSSTUBE
LENGTH

WHERE XXX IS LENGTH IN INCHES
EG. 128" LONG TUBE: D6005-128

CL4105119

W/D: 69796

- 2) MATERIAL: 2.750 OD x 0.375 WALL 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11) SEAMLESS ALUMINUM TUBE.
MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi
MINIMUM YIELD TENSILE STRENGTH = 66 ksi
- 3) TOLERANCES ARE PER ASTM B210 AS FOLLOWS:
O.D.: ± 0.006 MEAN (±0.012 INCLUDING OVALITY)
WALL: ±0.015 MEAN (±0.038 INCLUDING ECCENTRICITY)
LENGTH: XXX +0.125/-0.000
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

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Alt. Item ref. no.	42438/3
Customer PO.	PO. 14138
Date:	01.30.12

Dart Aerospace, Po. 14138
D6005 - 128
Made in Germany Dest.: Hawkesbury ONT, Canada

free from live plant pests

[illegible]

Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

Kunde: Dart Aerospace Ltd.
Client:

1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada

Zeugnisnummer: 77/12
Cert No. / No. du certificat:

Bestellnummer: PO14138
Order No. / No. de commande

Produkt: Rohre nahtlos gepresst
Product / Produit: Tubes seamless extruded

Auftrag: 42438/3
Our Reference/Notre Reference:

Spezifikation: AMS - QQ - A - 200/11; Spezifikation Dart Aerospace D6005
Specification:

Werkstoff: 7075
Alloy/Alliage:

Zustand: T 6511
Temper/Etat

Abmessung: 2,750 INCH x 2,000 INCH x 0,375 INCH x 128,000 INCH
Size / Dimension: D6005-128 2.750 x 0.375 x 128

Kennzeichnung: Cert No. 77/12 - ALUNNA - 7075 - T6511 - Cast No. 7150 - AMS - QQ - A - 200/11 - 2.750" OD x 0.375" Wall - Heat
Marking/Marquage: Lot No. 1301311 - ALUNNA Order Conf No. 42438/3-1 - P.O. 14138

Country of Manufacture: Germany

Lieferung

Delivered Material / Matériel délivré:

31

518,00

Products are in accordance with applicable RoHS

1. Chemische Analyse

Chemical Analysis / analyse chimique

Elemente ohne Grenzwerte:
einzelnen max. 0,05 %, insgesamt 0,15 %

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.			1,2		2,1	0,18	5,1						
Cast No. max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20					
7150/11	0,085	0,195	1,389	0,070	2,476	0,219	5,843	0,037	0,003	0,0310	0,0001	0,0015	0,0001

Hydrogen content: 0,09

ccm/100 g Al Elements without indication < 0,01 %

country of melt manufacturer: Germany

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Ra: 0,58 µm
min.	77,0	66,0				
max.						
1	87,145	79,605	9,0			max. 0,126 µm
2	86,275	78,590	10,0			
3	87,000	79,460	10,0			
S 12/11						

Ergebnis der Prüfungen:

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultats:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

24.01.2012 / merg



Certified acc. DIN EN ISO 9001:2008 and DIN EN 9100:2003

valid until 2013-11-10

Cert.- Req. No.: 001959 QM; 001959 ASH

ALUNNA

Abnahmebeauftragter

Aluminiumwerk Unna AG, Uelzener Weg 36, 59425 Unna, Germany

Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

Kunde: Dart Aerospace Ltd.

Client:

1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada

Zeugnisnummer: 77/12

Cert No.: / No. du certificat:

Bestellnummer: PO14138

Order No. / No. de commande

Auftrag: 42438/3

Our Reference/Notre Reference:

Produkt:

Product / Produit:

Rohre nahtlos gepresst

Tubes seamless extruded

Spezifikation:

Specification:

AMS - QQ - A - 200/11; Spezifikation Dart Aerospace D6005

Werkstoff:

Alloy/Alliage:

7075

Zustand: T 6511

Temper/État

Abmessung

Size / Dimension

2,750 INCH x 2,000 INCH x 0,375 INCH x 128,000 INCH

D6005-128 2.750 x 0.375 x 128

Kennzeichnung

Marking/Marquage:

Cert No. 77/12 - ALUNna - 7075 - T6511 - Cast No. 7150 - AMS - QQ - A - 200/11 - 2.750" OD x 0.375" Wall - Heat

Lot No. 1301311 - ALUNna Order Conf No. 42438/3-1 - P.O. 14138

Country of Manufacture: Germany

Lieferung

Delivered Material / Matériel délivré:

10

166,00

Products are in accordance with applicable RoHS

1. Chemische Analyse

Chemical Analysis / analyse chimique

Elemente ohne Grenzwerte:

einzelnen max. 0,05 %, insgesamt 0,15 %

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.			1,2		2,1	0,18	5,1						
Cast No. max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20					
7150/11	0,085	0,195	1,389	0,070	2,476	0,219	5,843	0,037	0,003	0,0310	0,0001	0,0015	0,0001

Hydrogen content: 0,09

ccm/100 g Al Elements without indication < 0,01 %

country of melt manufacturer: Germany

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Ra: 0,58 µm
min.	77,0	66,0				
max.						
1	87,145	79,605	9,0			max. 0,126 µm
2	86,275	78,590	10,0			
3	87,000	79,460	10,0			

5.17.02/11

**Ergebnis der
Prüfungen:**

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultats:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

30.01.2012 / merg



Certified acc. DIN EN ISO 9001:2008 and DIN EN 9100:2003

valid until 2013-11-10

Cert.- Req. No.: 001959 QM; 001959 ASH

ALUNna

[Signature]

Abnahmebeauftragter

Aluminiumwerk Unna AG, Uelzener Weg 36, 59425 Unna, Germany

EXTRUSION INSPECTION SHEET

ULTRA SONIC MEASUREMENTS

TUBE #	TOTAL LENGTH	DIA two readings	INSIDE DIA	wall thickness measured w/vern	Strightness at 12"	Rockwell Reading	LOCATION on tube	R1	R2	R3	R4
1	128.00"	2.744"/2.741"	1.992"	0.381"/0.371"	0.010"	N/A	middle 64.0"	0.381"	0.385"	0.380"	0.378"
2	128.00"	2.743"/2.747"	1.992"	0.381"/0.365"	0.008"	N/A	middle 64.0"	0.387"	0.380"	0.377"	0.385"
3	128.00"	2.740"/2.741"	1.990"	0.375"/0.375"	0.006"	N/A	middle 64.0"	0.385"	0.376"	0.376"	0.392"
4	128.00"	2.742"/2.743"	1.995"	0.385"/0.369"	N/A	N/A	middle 64.0"	0.385"	0.387"	0.379"	0.384"
5	128.00"	2.742"/2.742"	1.992"	0.386"/0.362"	N/A	N/A	middle 64.0"	0.380"	0.387"	0.384"	0.380"
6	128.00"	2.744"/2.744"	1.985"	0.387"/0.362"	N/A	N/A	middle 64.0"	0.381"	0.386"	0.380"	0.381"
7	128.00"	2.741"/2.742"	1.995"	0.375"/0.373"	N/A	N/A	middle 64.0"	0.378"	0.389"	0.389"	0.369"
8	128.00"	2.751"/2.748"	1.990"	0.375"/0.378"	N/A	N/A	middle 64.0"	0.381"	0.392"	0.377"	0.388"
9	128.00"	2.747"/2.749"	1.995"	0.389"/0.365"	N/A	N/A	middle 64.0"	0.380"	0.381"	0.384"	0.384"
10	128.00"	2.741"/2.743"	1.990"	0.378"/0.375"	N/A	N/A	middle 64.0"	0.377"	0.379"	0.386"	0.385"
11	128.00"	2.750"/2.750"	1.988"	0.378"/0.376"	N/A	N/A	middle 64.0"	0.381"	0.381"	0.384"	0.382"
12	128.00"	2.749"/2.744"	1.992"	0.381"/0.372"	N/A	N/A	middle 64.0"	0.382"	0.385"	0.378"	0.380"
13	128.00"	2.750"/2.751"	1.990"	0.385"/0.372"	0.010"	N/A	middle 64.0"	0.380"	0.384"	0.387"	0.385"
14	128.00"	2.750"/2.747"	1.990"	0.386"/0.365"	0.007"	N/A	middle 64.0"	0.382"	0.395"	0.384"	0.369"
15	128.00"	2.742"/2.745"	1.992"	0.378"/0.369"	0.009"	N/A	middle 64.0"	0.369"	0.382"	0.385"	0.381"
PART # D6005-128		P/O# 14138		BATCH # B69796		Notes: REFERENCE ONLY 8/12/11					

